April 20, 2010

VIA ELECTRONIC DELIVERY AND U.S. MAIL

Ms. Patricia Krause
Community Involvement Coordinator
U.S. Environmental Protection Agency, Region 5 (Mail Code SI-7J)
77 West Jackson Boulevard
Chicago, IL 60604-3590

Re: Ashland Lakefront Superfund Site, Ashland, Wisconsin: Additional Comments on EPA's Proposed Plan (June 2009)

Dear Ms. Krause:

In June 2009, the United States Environmental Protection Agency ("EPA" or "Agency") issued its Proposed Remedial Action Plan ("Proposed Plan") for the Ashland Lakefront Superfund Site (the "Site" or the "Ashland Site") and solicited public comment thereon. Northern States Power Company, a Wisconsin corporation, d/b/a Xcel Energy ("NSPW") provided comments on the Plan by the August 17, 2009 deadline.

Since the close of the public comment period there have been new developments which warrant the submission of additional comments. In particular, EPA has provided further information about the nature of the proposed cleanup in terms of possible performance standards that could potentially be incorporated into the Remedial Design/ Remedial Action ("RD/RA") for the Site – information that was not available at the time the Proposed Plan was subjected to public comment. As a result, NSPW submits for EPA's consideration additional views on the most technically sound, safe, environmentally protective, and cost-effective approach to the remediation of the Ashland Site, and does so specifically in response to new information from EPA about such performance standards.[1] NSPW respectfully requests that the Agency consider these comments and add them to the Administrative Record for the Ashland Site pursuant to 40 C.F.R. § 300.825(c).

Background

The Proposed Plan issued in June of 2009 provided for dredging of impacted sediments from that portion of the Site that includes Chequamegon Bay of Lake Superior. In reviewing a draft of the Plan, the National Remedy Review Board suggested in a January 6, 2009 memorandum that "the Region define remedial action performance standards" for the sediment cleanup. Following

[1] Although these additional comments focus on the new development of performance standards for a potential wet mechanical dredge remedy for the sediment area of the Site, NSPW reaffirms and incorporates by this reference the comments made in its August 17, 2009 comment package concerning the balance of the Proposed Plan.

the close of the public comment period, the Agency formally provided its initial thoughts to NSPW representatives regarding how such performance standards might be defined in the event that a wet dredge pilot test (and potentially a full scale wet dredge remedy) is implemented as part of the RD/RA for the Site. (See August 17, 2009 letter from Scott Hansen of Region V EPA to Jerry Winslow of NSPW.) In a series of additional letters to NSPW, which we understand are included as part of the Administrative Record for this Site, the Region provided additional comments on this important topic (see, e.g., , October 21, 2009, and January 6, 2010 letters from Scott Hansen of Region V EPA to Jerry Winslow of NSPW).[2] From these letters, we understand that the Agency is considering performance standards that generally would include the following:

1. Numeric total polycyclic aromatic hydrocarbons (tPAHs) Performance Standards would be established and apply at both the dredge "cut line" and at the habitat restoration layer;

2. In order to achieve a tPAH Preliminary Remediation Goal ("PRG") of 9.5 ppm on a Sediment Weighted Average Concentration ("SWAC") basis, no single sample could exceed a maximum of 22 ppm either at the cut line or the habitat restoration layer;

3. If any sheens or globules are detected in any post-dredge core sample bottle, then a re-dredge response is required; and,

4. The foregoing performance standards would be applied during a pilot test to determine whether a full scale wet dredge remedy should be implemented at the Site; implying that a contingent remedy may also be under consideration by the Agency.

To ensure that the Administrative Record is complete concerning these new issues, we provide the following supplemental comments for purposes of inclusion in the record:

1. TPAH Performance Standards Should Apply to the Habitat Restoration Layer on a SWAC Basis, Not at the Dredge "Cut Line"

Benthic organisms inhabit the top six inches of sediment material.[3] Given that the proposed dredge prism cut line would be set several feet below that level, the current habitat layer for benthic organisms will be removed during the dredging activities. The Proposed Plan provides for the post-dredging addition of a layer of clean material – a habitat restorative layer – over the lakebed to "control any residual contaminated surface sediments that may remain." NSPW agrees with the Agency that a new layer of habitat material (such as "fish mix") should be placed on the lakebed after contaminated sediment is removed. This will both provide an environment for recolonization of benthic organisms and also establish a buffer between those organisms and any residual tPAH

[2] NSPW also provided a series of letters to the Region on these issues. Those views were expressed, however, in the nature of settlement communications. While the supplemental comments provided herein echo some of the positions advanced in those communications, by submitting these comments we do not intend to waive the confidentiality of those settlement communications.

[3]See pages 8-9 of Attachment A of NSPW Comments on the EPA Proposed Remedial Action Plan dated August 17, 2009.

remaining at the cut line after the dredging is complete. Indeed, we are prepared to suggest methods of optimizing the restorative layer to promote recolonization, including the potential addition of organic carbon to further mitigate any residuals following the dredging process

Whether toxic levels of tPAHs could be present in this "fish mix" restorative layer – where the benthic organisms will reestablish/repopulate – is the key determinant as to whether any residual, post-dredge ecological risk will remain after the dredging is complete. As a result, performance standard concentrations for whatever tPAH PRG may ultimately be established[4] should be measured on a SWAC basis in this layer (i.e., the habitat restorative layer), not at the "cut line" (where no benthic organisms will exist) and not before application of the habitat restorative layer (the very purpose of which is to provide the recolonization habitat).

2. The Establishment of a "Maximum" Single Sample Cleanup Goal is Neither Necessary nor Practicable

The Proposed Plan called for the cleanup of sediment exceeding 9.5 ppm of tPAH which is equivalent to the Site PRG prescribed by EPA of 2,295 μg tPAH/g OC assuming organic carbon is present at 0.415%.[5] There was no mention in the Plan, however, of how success would be measured, i.e., how one would determine whether the 9.5 ppm cleanup goal would be met.[6] Since that time, the Agency has suggested that it agrees that a SWAC approach should be used, but has also indicated that the cleanup meet a maximum of 22 ppm, from any one sample taken at any one point.

Establishing a maximum tPAH concentration as an additional remediation goal for either the restoration layer and/or for the cut line is neither necessary nor practicable, particularly a maximum that is as arbitrarily low as 22 ppm, given that:

- It is in all parties' interest to establish performance standards that are realistic and implementable, and the best information we have from companies that perform sediment removal at contaminated sites is that achieving a performance standard, at a site such as this one, whereby no single sample exceeds 22 ppm at the cut

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[4] NSPW already has expressed concern with the 9.5 ppm PRG identified in the Proposed Plan (see NSPW's comments of August 17, 2009, Section 2). Further, we understand that Agency policy for dredge projects is evolving away from the expression of numeric PRGs to the expression of interim and final SWAC goals through the process of adaptive management. Such an adaptive management approach may be appropriate for this Site and NSPW believes that further consideration of such an approach is warranted.

[5] NSPW and the Region agree that the preferred way of stating tPAH concentrations is to normalize them for the presence of organic carbon. Thus, 9.5 ppm could be expressed as 2,295 μg tPAH/g OC, using a figure for organic carbon content of 0.415%; 22 ppm could be expressed as 5,324 μg tPAH/g OC, using a figure for organic carbon content of 0.415%. For ease of reference, and to track the Proposed Plan's terminology, tPAH concentrations in these comments will be presented in parts per million (ppm) format.

[6] We believe that if a ppm concentration is ultimately set as a cleanup goal, determination of compliance with that goal should be measured on a SWAC basis. Note, however, that the size of the dredge management unit (DMU), must be sufficiently large to allow for meaningful averaging of sampling results (i.e., SWAC).

line is not practicable and indeed is nearly impossible without rendering the remedy grossly cost-ineffective.

- The whole purpose of a SWAC approach is to avoid having one or more "outlier" samples drive the remedial action and associated costs. The application of a 22 ppm maximum would result in the 22 ppm "controlling" the remedy, essentially obviating the SWAC approach. NSPW suggests that if a maximum is employed in the residuals layer, it should be on the order of 110 ppm, since it (i) represents a more likely upper limit of the range of sampling results at the generated residuals layer that would yield a 9.5 ppm concentration on a SWAC basis within the habitat restorative layer; (ii) is more consistent with the results in the Baseline Ecological Risk Assessment; and, (iii) is predicted to result in no exceedance of a 9.5 ppm PRG in the habitat restorative layer where the benthic community will actually reestablish and reside.

- In any event, rather than having a not to exceed maximum for any single sample, the better approach is to employ a sampling and analysis protocol that (i) permits averaging, (ii) guards against the presence of "hot spots", and (iii) avoids having a single outlier sample force unnecessary, additional dredging. One such protocol is a two-way compositing system utilizing a Bayesian statistical approach. An example of how such an approach could be implemented at this Site is included in Appendix A.

- In addition, the Agency should explore whether instead of establishing rigid numeric criteria, it may be more appropriate to implement a remedial approach that emphasizes adaptive management and interim and final SWAC goals. We believe such an approach would be in line with evolving Agency policy on how best to approach sediment dredging remediation projects.

3. <u>The Presence of Sheens/Globules Should Trigger Appropriate Control Measures Not Redredging</u>

The Agency also has suggested that <u>any</u> "sheens or globules" in <u>any</u> post-dredge core sample bottle would be viewed as evidence of the existence of residual free product which would compel a re-dredge response. This view seems to ignore that all dredging projects resuspend some sediment material, and that there are several management practices that can be provided during the dredging activity to control such releases, particularly when one considers that such releases predominate during active dredging within a dredge containment unit. Detection of sheen during active dredging should trigger control measures, not redredging. Remedial dredging projects typically establish both near-dredge and far-dredge containment zones. Surface water quality indicators are established and managed differently between these two zones, as are response actions. NSPW believes this performance standard should be addressed via such response actions during the active dredge project and not determinative of whether redredging is required. This is not to mention the fact that there could be multiple sources such as prop wash, degradation of organic materials or the like that can be responsible for causing any sheens or globules that may be detected in one or more sample bottles following dredging activities.

4. <u>A Pilot Project Should Be Used to Optimize the Full Scale Wet Dredge Remedy, and Performance Standards Need to Be Selected that Are Practical and Implementable</u>

NSPW believes a pilot project would generate site-specific operations data that can be used to optimize a future, full-scale wet dredge remedy. Information from the pilot project could permit the fine tuning of dredging techniques, sampling protocols, sheen control steps and design and installation of the restorative layers. It appears, however, that the Agency may instead view a potential pilot project as a test of whether a wet dredge remedy should be implemented at the Site at all, or whether a contingent remedy should be implemented in its place. To the extent a pilot project is implemented, its primary purpose should be to optimize the future full scale remedy rather than to serve as a litmus test for whether or not a contingent remedy is necessary for the Site.

In any event, to the extent a wet dredge remedy is selected for this Site, and to the extent a contingent remedy might be identified as well, we remind the Agency, as explained in detail in our comments on the Proposed Plan (August 17 comments at Section 4), that a dry dredge remedy (whether contingent or otherwise), is ill-advised due to the potential for basal heave failure, which poses significant safety risks at the Site. In addition to jeopardizing human health, a basal heave failure could also lead to greater environmental contamination by mobilizing and ultimately releasing into the bay the contaminant plume currently contained in the Upper Bluff area, and by destroying the artesian wells along the shoreline if the Miller Creek clay aquitard was irreparably harmed. A dry dredge remedy would also take an unduly long time to implement, would lead to high levels of air emissions, would result in acute community impacts during its multi-season implementation, and would be cost ineffective. NSPW, therefore, submits that in no event should a dry dredge remedy be selected for this Site, whether as a contingent remedy or otherwise.

NSPW appreciates this opportunity to comment on aspects of the Ashland Site cleanup which arose after the close of the comment period and to continuing to work with the Agency in a cooperative fashion to address these and other issues. Thank you.

Sincerely,

Jerry C. Winslow

Jerry C. Winslow
Principal Environmental Engineer

Cc: Craig Melodia, EPA Region 5
Scott Hansen, EPA Region 5
Steve Ells, EPA Headquarters
Ernie Watkins, EPA Headquarters
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Appendix A

BAYESIAN COMPOSITING PROTOCOL SCHEME TO DETERMINE COMPLIANCE WITH PRG/RAL

The proposed approach is an application of published methods (Gilbert, 1987; Skalski and Word, 1993; Patil and Taillie, 2001; Gore *et al*, 2001) to designate the size and location of hot spots relative to the RAL and permit monitoring for compliance with the PRG.

To illustrate application of this proposed approach, existing data from the Ashland site has been used to demonstrate the application of this approach. The approach consists of the following steps:

- In this example, there are 75 samples that have both tPAH and organic carbon measurements in the Ashland data compilation for the two embayments. We have also added 6 dummy variable numbers at the low range to demonstrate that concentrations are not "diluted away" and provide a sufficient data distribution to test the approach. These data were used to create 18 composites, each containing 9 samples. These data are placed into a 9X9 grid sample containing cells in both rows and columns. These 81 samples/cells are distributed in the composites equally so that each sample is included in one row and one column of a grid containing the sample data. The data for each row and column composite are averaged. These row and composite means represent SWAC values and are subsequently compared to the 2,295 μg tPAH/g OC (Figure 1).

- Because the composites are an average concentration from multiple stations it is possible that an elevated concentration for an individual sample might be diluted and therefore not observed in an evaluation of the EPA proposed maximum concentration. To maximize the retention of this ability to identify individual samples that contain unacceptable maximum station concentrations, we propose to include each station in a row and a column composite. Mean concentrations of both a row and a column composite that are elevated beyond certain limits identify the individual sample containing the target analyte exceeding the maximum allowed PRG concentration.

- The maximum number of samples included in a composite sample is determined by dividing the action level by the background or reference value. For purposes of illustration, assume that there are two performance standards: the SWAC (2,295 μg tPAH/g OC) and the EPA proposed maximum value for any individual sample (5,324 μg tPAH/g OC). A composite is provided for each row and column. That composite is measured against the SWAC PRG (2,295 μg tPAH/g OC) and if the composite exceeds the SWAC the area represented by that set of samples would be subject to further evaluation.

- The number of samples included in a composite would be either of these action levels divided by the reference or background value determined by the following method. The background or reference value would be determined by examining the distribution of samples having concentrations less than a particular value (Figure 1). This distribution of data is included on a chart with the toxicity information so that they can be referenced at the same time. The mid-point of the low range of the distribution was designated as the reference or background concentrations (~400-500 μg tPAH/g OC). We used this value compared to the EPA proposed maximum RAL (5,324 μg tPAH/g OC) to determine the acceptable composite value which is 10. The samples were divided into groups of 9 to provide a composite number of samples <10.

- The distribution of samples can be randomly assigned a location or can also be distributed as closely as possible based on their spatial location. It is anticipated that there will be spatial patterns in contaminant distribution. Stratifying the distribution of individual samples into composites that contain samples that are close to each other permits grouping of the elevated samples and maximizes the chances that 'hot spots' will be identified and remediated.

As noted above, we have created a table from the tPAH data for the Ashland site, with individual sample concentrations normalized to organic carbon.

The rows or composites that exceed the SWAC value of 2,295 □g tPAH/g OC are highlighted in green shading. The stations containing values which exceed 5,324 μg tPAH/g OC -- the level EPA proposes be used as a "maximum" RAL -- are highlighted in red shading. Those row or station composites that have a sample value greater than the 5,324 figure also have mean concentrations that exceed the back ground or reference value of 450 μg tPAH/g OC plus the EPA proposed maximum RAL/n samples = 9 = 1039 μg tPAH/g OC. Notice from the table that this exceedance is detectable even in those station composites that did not exceed the SWAC but that there is no case where a station exceeded the 5,324 value and the mean of a row or column composite failed to detect the unacceptable sample value.

The point is simple: using a Bayesian compositing protocol will provide great confidence that the remedy will not leave hot spots in place without allowing one outlier exceedance of the EPA proposed "maximum" RAL from unnecessarily and inappropriately dictating further remediation.

Table 1. Station concentrations of µg tPAH/g OC for all data contained in the data base with both the tPAH and OC concentrations measured on each sample, the mean concentrations of each row and also each column to demonstrate compliance with SWAC or EPA Proposed maximum RAL values using the existing data.

	Column									
Row	1	2	3	4	5	6	7	8	9	mean
a	59.4	25.9	217.3	221.4	59.3	876	818.5	10642.3	1252.8	1574.767
b	132.2	7.9	26.6	184.9	258	387	33.77	109059.5	120.4	12245.59
c	212	59.5	39.6	156	197.7	174.2	110.8	1815.7	892.3	406.4222
d	233.6	54.2	57.7	1980	145.8	172.7	44	20923.5	100	2634.611
e	41	15.8	349	67.3	24.2	92.2	25	1348.6	100	229.2333
f	8.9	8.6	261.5	10.5	145.6	342.6	435.4	173408.3	100	19413.49
g	44	8.9	69.7	6.8	8.7	182.7	17.5	123	100	62.36667
h	116.9	122.3	10.5	38.1	2107.4	30.5	143.3	491.9	100	351.2111
i	35.9	19.5	38.1	221.4	38.9	117.6	920	169076.5	100	18951.99
mean	88.49	32.46	107.3	289.04	299.06	238.15	255.527	48689.73	287.45	5587.467

Figure 1. Cumulative Distribution Plot of Sediment Concentrations of µg tPAH/g OC Compared to the Distribution of Biological Effects Responses